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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,358

06/19/2006

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072956-0102

8189

22428 7590 09/29/2010
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EXAMINER

CHEW, BRIAN

ART UNIT

PAPER NUMBER

2195

MAIL DATE

DELIVERY MODE

09/29/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,358	Applicant(s) HASHIMOTO ET AL.	
	Examiner BRIAN CHEW	Art Unit 2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/19/2008, 3/30/2007, 6/19/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 13-24 are presented for examination.

Information Disclosure Statement

2. The information disclosure statement filed 30 March 2007 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

3. Claims 13-14, 16-17, 20 and 23 are objected to because of the following informalities:
 - i. As per claim 13: Lines 9-10: There appears to be a typographical error at "information on determined server". This shall be corrected to read -- information on the determined server --. Appropriate correction is required.
 - ii. As per claim 14: Line 10: There appears to be a typographical error at "the estimated point". This shall be corrected to read -- the estimation point --. Appropriate correction is required.

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iii. As per claims 16-17, they have the same deficiencies as stated in the objection of claims 13-14; therefore, they are objected to for the same reasons.

Appropriate correction is required.

iv. As per claims 20 and 23, they have the same deficiencies as stated in the objection of claim 14; therefore, they are objected to for the same reasons.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 14-15, 17-18, 20-21 and 22-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.** The following claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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i. As per claim 14:

Lines 6-7: The language “a point indicating an amount of resource that has been consumed by each of the servers” lacks support in the specification. Fig. 12 shows two separate graphs of resource consumptions on servers 101b and 101c (*page 24, lines 14-20*). Fig. 12 further shows two distinct points 1205a and 1211a for the current resource consumptions of servers 101b and 101c (*page 25, lines 7-12 and 23-28*). It is clear from the disclosure that there is a distinct point indicating the current resource consumption for each server.

Line 7: The language “a point indicating a maximum resource capacity of each of the servers” lacks support in the specification. Fig. 12 shows two separate graphs of resource consumptions on servers 101b and 101c (*page 24, lines 14-20*). Fig. 12 further shows two distinct points 1207 and 1213 for the current resource consumptions of servers 101b and 101c (*page 25, lines 13-15 and 29-31*). It is clear from the disclosure that there is a distinct point indicating the maximum resource capacity for each server.

ii. As per claim 15, it is dependent on claim 14 but does not overcome the deficiencies of claim 14; therefore, it is rejected for the same reasons.

iii. As per claims 17-18, they have the same deficiencies as stated in the rejection of claims 14-15; therefore, they are rejected for the same reasons.

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iv. As per claims 20-21, they have the same deficiencies as stated in the rejection of claims 14-15; therefore, they are rejected for the same reasons.

v. As per claims 23-24, they have the same deficiencies as stated in the rejection of claims 14-15; therefore, they are rejected for the same reasons.

5. Claims 13-15 and 17-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Language in the following claim(s) is not clearly understood:

i. As per claim 13:

Lines 12-13: It is uncertain whether “the server” is intended to refer to the *determined* server.

Lines 14-15: There is insufficient antecedent basis for “the determined servers” (i.e., only a single server was determined to execute the process).

ii. As per claim 14:

Lines 5-6: It is uncertain what is meant by “a point indicating an amount of resource that has been consumed by each of the servers” (i.e., does this reflect the collective resource consumption of the servers or the consumption of only a single server?).

Lines 6-7: It is uncertain what is meant by “a point indicating a maximum resource capacity of each of the servers” (i.e., does this reflect the collective resource maximum of the servers or the maximum of only a single server?).

iii. As per claim 15, it is dependent on claim 14 but does not overcome the deficiencies of claim 14; therefore, it is rejected for the same reasons.

iv. As per claims 17-18, they have the same deficiencies as stated in the rejection of claims 14-15; therefore, they are rejected for the same reasons.

iv. As per claims 19:

Line 5: There is insufficient antecedent basis for “the client” (i.e., is this intended to refer to the plurality of clients?).

Line 8: There is insufficient antecedent basis for “the determined servers” (i.e., only a single server was determined to execute the process).

iv. As per claims 20-21, they have the same deficiencies as stated in the rejection of claims 14-15; therefore, they are rejected for the same reasons.

v. As per claims 22, it has the same deficiencies as stated in the rejection of claim 13; therefore, it is rejected for the same reasons. Further:

Lines 5 and 9: It is uncertain what is performing the “transmitting the process request to the determined servers” (i.e., is this performed by the servers or the clients? If this is performed by the servers, when did they first receive the process request?).

vi. As per claims 23-24, they have the same deficiencies as stated in the rejection of claims 20-21; therefore, they are rejected for the same reasons.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 16-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

7. As per claim 16, it recites a “load distribution device”; however, it appears that the device would reasonably be interpreted by one of ordinary skill in the art as software, per se, failing to be tangibly embodied or include any recited hardware as part of the system. Software alone is directed to a non-statutory subject matter. Applicant is advised to amend the claims to include hardware (e.g., processor and memory) to overcome the §101 rejection.

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8. As per claims 17-18, they are dependent on claim 16 but do not overcome the deficiencies of claim 16; therefore, they are rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 13, 16, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pitkin et al. (US 5,341,477; hereinafter Pitkin).**

10. As per claim 13, Pitkin teaches a server/client system in which a plurality of servers and a plurality of clients are connected through a network (*column 4, lines 39-41*), and the servers execute a process based on a process request from the clients (*abstract*), wherein at least one of the servers includes

- a process information receiving unit configured to receive information on the process from the clients through the network (*abstract, line 9*);
- a determining unit configured to determine a server to execute the process from among the servers based on the information on the process (*abstract, lines 10-11*);
- and

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- a server information transmitting unit configured to transmit information on determined server to the clients (*abstract, lines 10-11; column 2, lines 45-47*), and each of the clients includes
- a server information receiving unit configured to receive the information on the server (*column 2, lines 45-47 and 51-52*); and
- a process request transmitting unit configured to transmit the process request to the determined servers (*column 2, lines 51-52*),

but does not expressly disclose a server transmitting a process result to the clients.

It is obvious to one of ordinary skill in the art at the time the invention was made for a server to transmit a process result to the clients because Pitkin teaches a plurality of servers delivering one of several services to the clients (*abstract, lines 2-4*). It is obvious for the server to transmit a process result to the clients in order to satisfy the client request.

11. As per claims 16 and 19, they are rejected for the same reasons as stated in the rejection of claim 13.

12. As per claim 22, it is rejected for the same reasons as stated in the rejection of claim 13. Pitkin further teaches a computer-readable recording medium that stores therein a load distribution program for distributing loads of servers in a server/client system (*figure 2, broker 30 and clients 11-19*).

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13. Claims 14-15, 17-18, 20-21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pitkin in view of Deng et al. (US 2001/0039581; hereinafter Deng).

14. As per claim 14, Pitkin teaches the system of claim 13, but is silent on wherein the determining unit includes a first calculating unit configured to calculate, for each of the servers, a first distance from an estimation point indicating an estimated consumption to an ideal consumption line, the estimated consumption obtained by adding an amount of resource to be consumed by execution of the process to a point indicating an amount of resource that has been consumed by each of the servers, the ideal consumption line being a straight line that connects an origin and a point indicating a maximum resource capacity of each of the servers expressed in a space having parameters of resource as axes; and a second distance calculating unit configured to calculate, for each of the servers, a second distance from the estimated point to the origin in the space, and the determining unit is configured to determine the server based on at least one of the first distance and the second distance.

Deng teaches wherein the determining unit includes

- a first calculating unit configured to calculate, for each of the servers, a first distance from an estimation point indicating an estimated consumption to an ideal consumption line, expressed in a space having parameters of resource as axes (*paragraph 30, lines 8-19; paragraph 31, lines 5-13; paragraph 24, lines 17-19*); and

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- a second distance calculating unit configured to calculate, for each of the servers, a second distance from the estimated point to the origin in the space (*paragraph 30, lines 8-10; paragraph 31, lines 4-5*), and
- the determining unit is configured to determine the server based on at least one of the first distance and the second distance (*paragraph 31, lines 5-13*),

but does not expressly disclose the estimated consumption obtained by adding an amount of resource to be consumed by execution of the process to a point indicating an amount of resource that has been consumed by each of the servers, the ideal consumption line being a straight line that connects an origin and a point indicating a maximum resource capacity of each of the servers expressed in a space having parameters of resource as axes.

It is obvious to one of ordinary skill in the art at the time the invention was made for the estimated consumption obtained by adding an amount of resource to be consumed by execution of the process to a point indicating an amount of resource that has been consumed by each of the servers, the ideal consumption line being a straight line that connects an origin and a point indicating a maximum resource capacity of each of the servers because Deng teaches a requirements vector that prescribes a request's expected resource requirement and a capability vector that indicates a server's unused resource portion (*paragraph 24, lines 8-10; paragraph 27, lines 4-6*). Deng's requirements vector and the capability vector do not consider resources currently in use, but it would have been obvious to add the current resource consumption to each

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vector to arrive at the estimated consumption and the ideal consumption line because, in either case, the distance between the two vectors would be the same.

One of ordinary skill in the art at the time the invention was made would have been motivated to modify Pitkin with the teachings of Deng for “load balancing or distribution of client requests across multiple servers in a networked computing environment”, where servers are selected for processing client requests “so that the sum of all the costs, for the combination of resource and request pairings, is minimized” (*paragraph 2, lines 4-5; paragraph 16, lines 3-6*).

15. As per claim 15, Pitkin in view of Deng teaches the system of claim 14, wherein the parameters include at least one of a load amount of a central processing unit, a load amount of a system memory, a load amount of a graphic processing unit, a load amount of a video memory, and a load amount of a network interface card (*paragraph 24, lines 8-14*).

16. As per claims 17-18, they are rejected for the same reasons as stated in the rejection of claims 14-15.

17. As per claims 20-21, they are rejected for the same reasons as stated in the rejection of claims 14-15.

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18. As per claims 23-24, they are rejected for the same reasons as stated in the rejection of claims 14-15.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lumelsky et al. (US 6,463,454) teaches matching client requests to servers based on cost requirements, such that the difference between request parameters and server parameters do not exceed a certain threshold.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN CHEW whose telephone number is (571)270-5571. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571)272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. C./
Examiner, Art Unit 2195

/Li B. Zhen/
Primary Examiner, Art Unit 2194